

Annual Standards Category Report for FY99 Object Management

STANDARDS CATEGORY DEFINITION

Object management is defined as the process that develops abstract object classes and methods that are

- Consistent in their representation of object attributes/methods,
- Applicable to 95% of the M&S employing them,
- Accepted by the M&S community, and
- Interoperable at levels allowed by their model environment.

STANDARDS REQUIREMENTS

The Object Management Standards Category (OMSC) will address the following:

- Development of definitions of abstract object classes for Army use,
- Development of policy and procedures for managing Army objects,
- Formation of liaisons between major Army simulations and other Standard Categorers to encourage use, updates, and expansion of object classes, and
- Explorations of methods for gathering, sharing, and storing metadata about standard objects.

ACCOMPLISHMENTS AND ASSESSMENT

The OMSC conducted a review, testing, and revision of the Platform Object and Unit Object for nomination as an Army object standard. Additionally, the OMSC developed the Location Object and the Data Object. The Environment Object development, comprised of a Terrain Object, Atmosphere Object, Space Object, and Ocean Object, was initiated. Also initiated was a framework that defines the behaviors required in M&S and the development of an approach to integrate the behaviors into objects.

The following is a synopsis of the OMSC's FY98 accomplishments:

- Platform Object. Using the component-based approach developed by the Standard Army Model and Simulation Objects (SAMSO) Study, the OMSC reviewed the SAMSO study approach and output related to the draft Platform Object. To explore the capability of the Platform Object to address expected M&S platform implementation; the OMSC conducted a number of M&S test applications. The simulations chosen for the test applications were the AMSAA Groundwars simulation and the TRAC-WSMR CASTFOREM/COMBAT XXI simulation. Additionally, to

gain a broader perspective on the application of the draft Platform Object to other M&S domains, an overview of the draft Platform Object was provided to the Army M&S Management Program Working Group (AMSMP WG) and the Army M&S Standard Categories for review. Comments were collected to determine changes necessary to the Platform Object needed to address differing M&S requirements. Based on the review and application to a set of M&S, an updated version of the draft SAMSO Platform Object was developed and submitted to the Standards Nomination and Approval Process (SNAP) and the Army Standards Repository System (ASTARS). A report was written that documented the SAMSO study results; the test applications using Groundwars and CASTFOREM/COMBAT XXI; crosswalk with WARSIM 2000 and the Logistics SC set of combat simulation requirements; and the final set of Platform Object components, methods, and definitions.

- Unit Object. As performed for the Platform Object, the OMSC reviewed the SAMSO study approach and output related to the draft Unit Object. To explore the capability of the Unit Object to address expected M&S implementation; the OMSC conducted an M&S test application. The simulation chosen for the test application was the TRAC-FLVN AWARS simulation. Additionally, to gain a broader perspective on the application of the draft Unit Object to other M&S domains, an overview of the draft Unit Object was provided to the Army M&S Management Program Working Group (AMSMP WG) and the Army M&S Standard Categories for review. Comments were collected to determine changes necessary to the Unit Object needed to address differing M&S requirements. Based on the review and M&S application, an updated version of the draft SAMSO Unit Object was developed and submitted to the Standards Nomination and Approval Process (SNAP) and the Army Standards Repository System (ASTARS). A report was written that documented the SAMSO study results; the test applications AWARS; crosswalk with WARSIM 2000, ARES, and the Logistics SC set of combat simulation requirements; and the final set of Unit Object components, methods, and definitions.
- Location Object. This object consists of the Local Object and the LatLon Object. The notion of location is fundamental to most military simulations. There are numerous coordinate systems used in simulation, each appropriate for some simulations and not suitable for others. A common, abstract location object can foster interoperability among simulations that use different coordinate schemes. A report was drafted to define the objects, object methods, and object definitions.
- Data Object: This object consists of the Data Requestor, Data Collector, and Data Event Listener. This object allows the M&S user to use a general data services that can be tailored to address unique study analysis data requirements. A report was drafted to define the objects, object methods, and object definitions.
- Environmental Object. An Environment Object was defined to represent the overall environment in which the simulation would transpire. The Environment Object is comprised of a Terrain Object, Atmosphere Object, Space Object, and Ocean Object. The OMSC initiated development of the Terrain Object and the object methods that are considered the minimum essential to represent terrain.

- Behavior Framework/Object Integration. Sophisticated modeling of combat requires the ability of the simulation to allow model entities with the capability to react to induce stimuli when it occurs. The OMSC initiated the development of a framework to define the behavior actions necessary for simulations to model combat entities. This framework will include the classification and integration of combat behaviors, from individual soldiers up to command level, into Army standard objects (i.e., elemental instruction sets, combat instruction sets, and command decision modeling sets)
- Website Development. The OMSC created a website that lists the relevant documentation and briefings associated with FY97/98 object development.

PRIORITIES FOR NEXT YEAR

The following are OMSC priority activities for FY99:

- Behavior Framework/Object Integration. As initiated in FY98, the OMSC will continue the classification and integration of combat behaviors, from individual soldiers up to command level, into Army standard objects (i.e., elemental instruction sets, combat instruction sets, and command decision modeling sets)
- Environment Object. In addition to the completion of the Terrain Object, the OMSC will continue development of the Environment Object by developing the Atmosphere Object, Space Object, and Ocean Object
- Simulation Services Objects. This object class represents functions such as the Simulation Engine, Simulation Management, Event Mangers, etc. The OMSC will develop a list of Simulation Services Objects that require standardization and initiate development of high-priority standards.
- Logistics Support Services Objects. This object class represents the modeling of assembly points, maintenance facilities, etc. The OMSC will develop a list of Logistics Support Services Objects that require standardization and initiate development of high-priority standards.
- Linkage of Platform and Unit Object Methods to Standard Algorithms. This activity will provide documentation on the standard algorithms and algorithm sources necessary to execute the Platform and Unit object methods. If standard algorithms cannot be found, a SNAP Standard Requirement Document will be submitted.
- Sample Execution of the Platform and Unit Objects in a Simulation Environment. This exercise will select and build a sample OO simulation using the standard objects to ensure that the minimal essential set of object elements is defined.
- Updated Website. This activity will revise the existing OMSC website to list objects, object methods, object definitions, and standard algorithm references in a easily navigable manner.

ROADMAP

OMSC ROADMAP

